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SOME PRESENT DAY PROBLEMS IN NUTRITION

By E. NEIGE TODHUNTER, Ph. D.
The State College of Washington

Progress in the science of nutrition has been rapid and many problems have been solved in the last 25 years. The discovery of the vitamins and their nutritional significance has meant that many deficiency diseases prevalent at the beginning of this century have ceased to take their former toll of human lives.

These facts do *not* mean, however, that all nutrition problems are solved. We now recognize the wide range which exists between gross signs of malnutrition and perfect health. Health surveys in urban and rural areas suggest that a large proportion of the population probably ranks nutritionally in this middle zone. They indicate, further, that diets low in protective foods are largely responsible for this suboptimal condition. Important among the nutrition problems yet to be settled is the further development of special techniques and apparatus for detecting mild forms of malnutrition which are apparently common today.

To solve the problem of providing adequate food for all, would change the health of the whole nation—a greater contribution even than the discovery of the nutritional prevention of those deficiency diseases that has saved the lives of thousands. The nutrition problem of today will continue to exist as long as there are *any* children who receive an inadequate food supply. While we continue to see children with decayed or imperfect teeth, children who are listless, who suffer chronic fatigue, and are anemic in appearance, with poor conditions of the skin and flabby muscles, and subject to many colds and infections, there will continue to be a nutrition problem. The problem will not be solved until every child and adult reaches a state of well-being which cannot be improved by the addition of dietary supplements.

Doctor Todhunter

Foremost among the practical problems of nutrition today, therefore, is the question: *to what extent can the average diet be improved and how?* The nutritional investigation of Corry Mann has frequently been cited. A diet believed to be adequate for growing boys was so greatly improved by the addition of one pint of milk daily that over a four-year period the average gain in weight and height of the boys receiving the improved diet was almost double that of the boys who continued on the original diet.

Other dietary studies of this type as well as controlled experiments on laboratory animals provide convincing evidence that the diets consumed by many groups today are not adequate, and that the addition of milk, fruits and vegetables brings about a striking improvement in the general health.

Other nutrition problems are concerned with the availability and the interrelationship of food constituents; the factors in-

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DECEMBER, 1938 • • VOLUME 2. • • NUMBER 2.

Food MAKES A DIFFERENCE

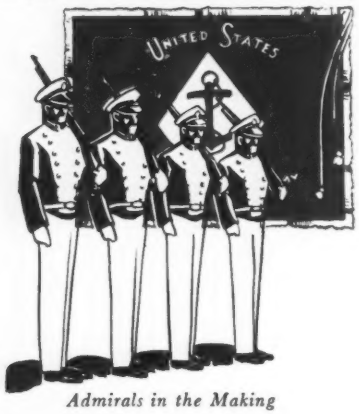
A TRUE STORY

The United States Naval Academy provides an excellent example of the effect a program of optimal diet and physical training can have on the health and physique of youths already in fine physical condition.

"About 40 young gentlemen have already reported themselves, whose handsome appearance and gentlemanly deportment give a cheerful aspect to the streets of our quiet city, and elicit universal admiration." Thus read a newspaper report of an important occasion in the history of the United States—the opening of the Naval School, now the United States Naval Academy, in Annapolis, Maryland, in 1845. Since that date, the Naval Academy has achieved world renown for the superb physique of the young men it trains, who later become the officers of the United States Navy.

The first midshipmen at Annapolis were classified as "youngsters," just appointed, whose ages were between 13 and 16, and "oldsters," ranging in age between 21 and 26, who had been recalled from sea duty and ordered to the Naval School. The "oldsters" resented being forced to study with the young lads, and a stern disciplinarian was needed to control them.

From such beginnings the Naval Academy has grown to a school of about 2300 men. Of the many applicants for admission, only those who are between the ages of 16 and 20, and who measure up to the high standards of physical and mental fitness set by the Academy, are given the opportunity of becoming midshipmen. Even though they are physically superior when they enter the Academy, the four year course of training produces striking improvement.



Admirals in the Making

The program of physical training includes a daily drill of about one hour, with various activities suited to the season of the year. Health is further safeguarded by a carefully prepared diet, and searching physical and dental examinations with corrective treatment and special exercise if needed.

A Quart of Milk Daily

Diet is an important part of the health regime. Each midshipman is given daily a quart of milk to drink, in addition to that used in cooking. Butter is furnished in the amount of a little more than two ounces for each midshipman per day. Cottage cheese is an item of the weekly menu. Meat is served twice a day, and eggs for breakfast four times a week. A typical breakfast includes fruit, whole grain cereal with cream, eggs, toast, milk and coffee or cocoa.

Meals for the 2300 men are prepared by 54 cooks in one of the largest and most modern kitchens in the world; it is called the Galley, and measures 50 x 225 feet. The midshipmen are assembled in military formation at the call of the bugle, just before each meal. At the word of command, they march into the Mess Hall and take their places at the tables, where they remain standing until the command, "Seats!" Serving the food requires about one and a half minutes, and approximately half an hour is allowed for each meal.

Under the carefully controlled program of excellent diet and physical training, the average gain in weight of the midshipmen is 15 pounds in the four years, and the average gain in height is between two and three inches. The future officers of the United States Navy must be fine specimens of manhood, and everything possible is done to make them so.

Glances

Health will be improved when the results of research studies such as those reported below are applied to daily food habits.

Vitamin B_1 is present in a wide variety of foods, but never in very large amounts. Vegetables are an important source, but the vitamin may be largely lost in the cooking water. Whole grains are also good sources of vitamin B_1, but refined cereals and flours are not. Meats vary in vitamin B_1 content according to the diet of the animals. Milk is a very important source of vitamin B_1 because of the quantity consumed and the fact that the vitamin is not readily destroyed under ordinary conditions of handling milk.

A study of the food intake of fifteen college freshmen women at Ohio State University showed that their diets contained inadequate amounts of the protective foods. Only two girls had an average milk consumption as high as that suggested by Dr. Stiebeling in her restricted diet for emergency use. Citrus fruits, tomatoes, eggs, and whole grain cereals were also used infrequently. Apparently much remains to be done to improve the food habits of young college women.

The requirement for vitamin D has been tentatively established as follows: 300 to 400 units daily during infancy; a similar amount during childhood, plus an adequate diet containing liberal amounts of milk, for proper development of bones and teeth. During adolescence, the need is probably the same, i. e. 300 to 400 units daily. The requirement during lactation is the highest, possibly about 800 units.

As part of a study of the effect of vitamin D on dental caries, three vitamin D milks of various potencies (250, 400 and 800 units) and plain milk were given to four groups of children. The children were already receiving one pint of milk daily, and the milk supplement brought their total daily intake up to about one quart. Results showed that the feeding of plain milk gave a slight reduction in caries incidence, and that increasing vitamin D intake with the milk gave progressively further reduction.

A SCIENTIFIC STUDY

By Dr. Vera MacNair
Winthrop College
Rock Hill, South Carolina

Ossification of the bones of the wrist has been widely used as an index of anatomic age. It seemed logical to assume that any modifications in the state of nutrition would alter the index. The problem was to determine how much this index would be affected by improving the diet.

The research was carried on as part of a larger study by a University of Chicago group (see NUTRITION NEWS, October 1938, Page 3, A Scientific Study). It was made in an institution caring for approximately 150 children, mostly of grade school age. The children were divided into three groups as nearly alike as possible in chronological age and skeletal development as determined chiefly by the Flory inspectional age scale. The control group continued to receive the institutional diet containing approximately one pint of milk daily; the second group was given daily an additional pint of plain milk, and the third group received daily an additional pint of milk containing 70 units of vitamin D.

X-rays of the right wrist were taken at the beginning and end of the year, and the Carter norms of bone growth were used for comparing the rate of ossification in the three dietary groups.

Milk Groups Gain

With few exceptions, children in all three groups were below the average in osseous development for their age, as judged by the Carter norms, at the beginning of the year. At the end of the year all groups were still below the average, although the milk groups had reduced their deficits appreciably. They had advanced approximately a third of a year more than the control group. The percentage of children in more favorable relation to the Carter standard for age at the end than at the beginning of the study was 17 for the control, 50 for the plain milk and 46 for the D-milk group. One suggested explanation of the failure to show a greater difference in the plain and vitamin D milks is the fact that the amount of vitamin D supplied was too small to demonstrate its value.

Of particular interest in connection with this study is the growth resulting from the simple addition of a pint of milk to the regular institutional diet.

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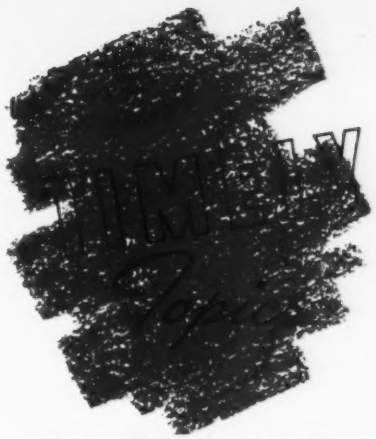

Pasteur Medal Awarded—The gold Pasteur medal, awarded annually to milkmen for deeds of valor in line of duty, has been awarded this year to Mr. Weitzel Anderson Turner of Richmond, Virginia. After a 48-hour period of heavy rainfall last July, a boys' camp was isolated and the boys were left without food or drinking water. Mr. Turner swam eight times to the camp with cans of milk strapped to his back.

Lunch Selection Poor—In a survey conducted by the Chicago Y.W.C.A., it was found that the average office worker's lunch is sufficient in quantity but usually shows poor selection. Lack of milk is the most conspicuous omission. Of the 400 girls questioned, only 198 drank a glass of milk each day.

It was found that the average amount of money spent is sufficient to purchase an adequate lunch, but due to ignorance or carelessness the money is not spent in the proper way. The Y.W.C.A. will utilize these findings as a basis for instruction in nutrition classes this winter.

Height of American Women—The present generation of college women has gained about one inch in height over the previous generation, as shown by results of recent studies. It is predicted that in the course of a generation the height of women in the population as a whole will also show a substantial increase, although the average height will probably not exceed 5 feet 4 inches. This increase in height seems to be the result of several forces, among them being an improvement in general nutritional status, and is an indication of the far-reaching results which may be expected from improved nutrition in the future.

A PRACTICAL PLAN

By Mrs. Kate W. Kinyon
Director of Home Economics
Denver Public Schools

Dr. Ernest H. Wilkins, president of Oberlin College, has recently said in an address at this college that, "Life is living, and living is done with and among people. That experience has, in my judgment, four main phases — home life, earning, citizenship, and leisure. The joy of home life and the responsibilities for good home life are matters for *men* as well as women."

The philosophy back of the home economics program at the secondary level in the Denver Public Schools is that home-making is a cooperative enterprise; that its success, in very large measure, depends upon the quality of cooperation, sharing, and tolerance practiced by the various family members, regardless of age or sex. With this point of view on the part of home economics teachers, boys have always been welcome in the home economics classes. The boys themselves have been the barrier to the development of a program to meet their home life interests, concerns, and problems. They have felt that it was "sissy" to enroll in homemaking classes. However, this attitude is rapidly becoming a thing of the past. Boys and men are beginning to see with Dr. Wilkins that "the joy of home life and the responsibilities for good home life are matters for *men* as well as women."

In the senior high schools in Denver the course offered for boys only is known as "Applied Economics." It is one semester in length and includes units entitled, *Foods in Relation to Health, Clothing Selection, Family Finance, Social Customs and Usages, and Care and Training of Young Children.* A second semester course may follow this one which considers the social and economic aspects of home and family life. Its special emphasis is on preparation for marriage and homemaking.

Purpose of Program

In the development of the program for boys in home economics, special attention is given to discovering the concerns, interests, purposes and problems of these boys. In other words, the boys and the home economics teacher plan together a program which is designed to help them "live better than they otherwise would." Life is living *right now* — not in the here-

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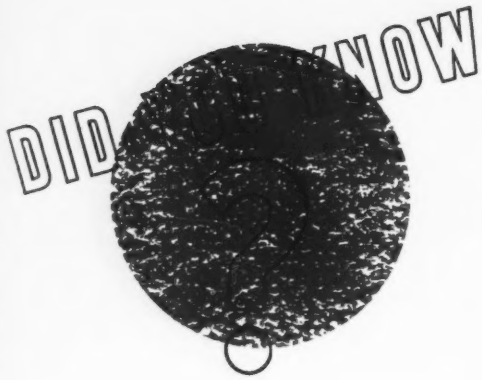

—that a soapless soap made of milk whey is to be tried in Germany? This will add another item to the list of new products made from milk.

—that almost 6 per cent of the total United States milk supply yearly is used in the manufacture of cheese? Consumption of this valuable food has been increasing rapidly but still does not equal that of many European countries.

—that American bakers are now using more than 190 million pounds of milk solids every year in bread and bakery products? In the past ten years the consumption of milk by bakers has nearly doubled.

—that per capita consumption of butter in New Zealand is more than double that in the United States? Consumption of milk, however, is lower.

—that calcium is the most permanent thing in animal life? Large animal bones and teeth have remained intact for millions of years, and the only evidence we have of man's first million years is in the calcium-bearing bones and teeth which he has left.

—that an average serving of ice cream contains only 200 calories? The popular idea that ice cream is fattening really has no basis in fact.

—that X-rays are now being used in the inspection of food? Internal defects are discovered by this means—for example, in fruits and vegetables.

—that there are 120 million cows in the world giving milk, according to estimates made at the World Dairy Congress in 1937? About 25 million of these cows are in the United States.

THINGS YOU'LL LIKE TO READ

OPPORTUNITIES FOR THE STUDENT MAJORING IN FOOD AND NUTRITION OR INSTITUTION ECONOMICS—by E. Neige Todhunter. Jour. Amer. Diet. Assoc. 14:522 (August-September) 1938.

Dr. Todhunter describes the duties involved in the various types of positions available, and tells what education, training and personal characteristics are desirable in each. Increased opportunity for women with food and nutrition training is predicted.

MILK: ITS IMPORTANCE AS FOOD—by J. F. Lyman. Bulletin No. 67, Agricultural Extension Service, Ohio State University (Columbus). Revised June 1938. Free.

This bulletin summarizes in a clear, concise manner, with the aid of excellent charts and illustrations, the composition and food value of milk and the reasons for its importance in the diet. It urges increased consumption of milk as a health measure.

THE VITAMIN FOLLIES—by Lois Mattox Miller. Hygeia Magazine, November 1938, page 1004 (Condensed in Readers' Digest, November 1938).

The American people have gone vitamin crazy, says the author of this interesting article. Everyone needs vitamins, but should obtain them by eating a well-balanced diet, not by swallowing capsules of vitamin concentrates.

A PRACTICAL PLAN

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after," is their slogan. The teacher who has the courage to discard a preplanned course of study and launch out in an adventure to discover *with pupils* their concerns and problems and plan *with them* learning situations to meet these concerns and problems is guaranteed the "time of her life." This teacher discovers for herself the *real* joy of being a learner with her pupils. She is willing to say with Dr. Somerset, "Educating youth is the most thrilling adventure in the world." The outline presented below is a semester's program in "Applied Economics" which a group of boys and their home economics teacher planned cooperatively to meet the interests, needs, concerns, and problems which these boys said were important to them *right now.*

1. Immediate needs
   a. Home relationships
   b. School relationships
   c. Boy and girl relationships
   d. Allowances and opportunities for earning money on a part time basis
   e. Etiquette
2. Near future needs
   a. Going to college
   b. Choice and preparation for a vocation
3. More remote needs
   a. Preparation for marriage
   b. Founding a home
   c. Planning for security
   d. Understanding causes for divorce.

When boys say that these are the problems about which they want a better understanding, it bespeaks happier and more satisfying home living for the future. Who would not get a thrill out of helping them ?

SOME PRESENT DAY PROBLEMS IN NUTRITION

(Continued from Page Five)

fluencing dental decay; the effect on health of the present high consumption of sugar; the effect of storage, preservation, and transportation of food on the vitamin values; and the determination of a standard of requirement for vitamins at all ages. The immediate practical problem with which we are all concerned is that of making our present knowledge available to and used by the community, and of stressing the value of a varied diet in which are liberal amounts of milk, fruits and vegetables. For these, it has been clearly shown, do improve nutritional well-being.

Everyone with any professional training in nutrition has a part in this educational program directed toward a proper food selection and an optimum health. It requires the utmost tact in interpreting this scientific information if we are to improve dietary habits and racial customs; and it requires wisdom and planning so that people on low income levels may get the fullest health return for every cent spent for food. By such means we can do our part to improve the health, resistance and longevity of our people and thus promote the efficiency, happiness and security of the race.

A SCIENTIFIC STUDY

(Continued from Page Seven)

The diet lacked a number of dietary essentials, some of which the milk supplied. There is probably no other single addition that would have added as much in quality with a similar addition of energy value. Although the diet was not thereby made perfect, this daily addition of the constituents of a pint of milk made possible a significant advance in the skeletal development of this group of children.